

CLAIMS:

1. A cast steel strip prepared by a process comprising the steps of:
supporting a casting pool of molten low carbon steel on a pair of
chilled casting rolls forming a nip between them and continuously casting
solidified strip of no more than 5 mm in thickness and including austenite grains
by rotating the rolls in mutually opposite directions such that the solidified strip
moves downwardly from the nip;
passing the strip through a rolling mill in which it is hot rolled to
produce a reduction in the strip thickness of at least 15%, and
cooling the strip to transform the austenite to ferrite within a
temperature range between 850°C and 400°C and at a cooling rate of more
than about 100°C/sec.
2. The cast steel strip of claim 1, wherein the low carbon steel is a
silicon/manganese killed steel, and the strip is hot rolled in the temperature
range of 900°C to 1100°C and then is cooled at a cooling rate in the range of
100°C/sec to 300°C/sec to produce a final strip having a yield strength of at
least 450 MPa.
3. The cast steel strip of claim 1, wherein the low carbon steel is a
silicon/manganese killed steel, and the strip is cooled at a cooling rate in the
range of 100°C/sec to 300°C/sec to produce a strip with a final yield strength of
at least 450 MPa.
4. The cast steel strip of claim 3, wherein the final yield strength is
between 450 MPa and 700 MPa.
5. The steel strip of claim 1, wherein the cooling rate is in the range of
100°C/sec to 300°C/sec and the strip has a yield strength of at least 450 MPa.
6. The cast steel strip of claim 5, wherein the yield strength is
between 450 MPa and 700 MPa.
7. The cast steel strip of claim 1, wherein the low carbon steel is a
silicon/manganese killed steel having the following composition by weight:
- | | |
|-----------|-----------------|
| Carbon | 0.02 - 0.08% |
| Manganese | 0.30 - 0.80% |
| Silicon | 0.10 - 0.40% |
| Sulfur | 0.002 - 0.05% |
| Aluminum | less than 0.01% |
8. The cast steel strip of claim 1, wherein the low carbon steel is
aluminum killed steel.

9. The cast steel strip of claim 1, wherein the aluminum killed steel has the following composition by weight:

5	Carbon	0.02 - 0.08%
	Manganese	0.40% max
	Silicon	0.05% max
	Sulfur	0.002 - 0.05%
	Aluminum	0.05% max

10. The cast steel strip of claim 1, wherein the cooling rate is in the range of 100°C/sec to 300°C/sec.

11. The cast steel strip of claim 1, wherein the finished cast steel strip has a yield strength of greater than 450 MPa.

12. The cast steel strip of claim 2, wherein the final cast steel strip has a yield strength in the range of 450 MPa to 700 MPa.

13. The cast steel strip of claim 12, wherein the cast steel has the following composition by weight:

20	Carbon	0.02 - 0.08%
	Manganese	0.30-0.80%
	Silicon	0.10-0.40%
	Sulfur	0.002 - 0.05%
	Aluminum	less than 0.01%

14. A cast steel strip prepared by a process comprising the steps of:
supporting a casting pool of molten low carbon steel on a pair of
chilled casting rolls forming a nip between them and continuously casting
solidified strip of no more than 5 mm in thickness and including austenite grains
by rotating the rolls in mutually opposite directions such that the solidified strip
moves downwardly from the nip;

passing the strip through a rolling mill in which the strip is hot
rolled to produce a reduction in the strip thickness of at least 15%; and
continuously cooling the strip to transform the austenite to ferrite
within a temperature range between 400°C and 850°C at a cooling rate of not
less than 90°C/sec without inhibiting the cooling rate.

15. The cast steel strip of claim 14, wherein said cooling rate is in the range 100°C/sec to 300°C/sec.

16. The cast steel strip of claim 14, wherein the low carbon steel is a silicon/manganese killed steel having the following composition by weight:

	Carbon	0.02 - 0.08%
	Manganese	0.30 - 0.80%
	Silicon	0.10 - 0.40%
	Sulfur	0.002 - 0.05%
5	Aluminum	less than 0.01%

17. The cast steel strip of claim 14, wherein the low carbon steel is aluminum killed steel.

18. The cast steel strip of claim 17, wherein the aluminum killed steel has the following composition by weight:

10	Carbon	0.02 - 0.08%
	Manganese	0.40% max
	Silicon	0.05% max
	Sulfur	0.002 - 0.05%
	Aluminum	0.05% max

15 19. The cast steel strip of claim 14, wherein the finished strip has a yield strength of greater than 450 MPa.

20. The cast steel strip of claim 14, wherein said cooling rate is in the range 100°C/sec to 300°C/sec and the strip has a yield strength of at least 450 MPa.

20 21. The cast steel strip of claim 20, wherein the strip has a yield strength in the range of 450 MPa to 700 MPa.

22. The cast steel strip of claim 14, wherein the low carbon steel is a silicon/manganese killed steel, and the strip is cooled at a cooling rate in the range of 100°C/sec to 300°C/sec to produce a strip having a yield strength of at least 450 MPa.

23. The cast steel strip of claim 22, wherein the final strip has a yield strength in the range of 450 MPa to 700 MPa.

24. The cast steel strip of claim 14, wherein the low carbon steel is a silicon/manganese killed steel, and the strip is hot rolled in the temperature range of 900°C to 1100°C and then is cooled at a cooling rate in the range of 100°C/sec to 300°C/sec to produce a final strip having a yield strength of at least 450 MPa.

25. The cast steel strip of claim 24, wherein the final strip has a yield strength in the range of 450 MPa to 700 MPa.

35 26. The cast steel strip of claim 24, wherein the steel has the following composition by weight:

Carbon	0.02 - 0.08%
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Manganese	0.30 - 0.80%
Silicon	0.10 - 0.40%
Sulfur	0.002 - 0.05%
Aluminum	less than 0.01%.